



Natural Heritage &
Endangered Species
Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
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ENDANGERED SPECIES OF MASSACHUSETTS

GOLDEN SEAL
(*Hydrastis canadensis* L.)

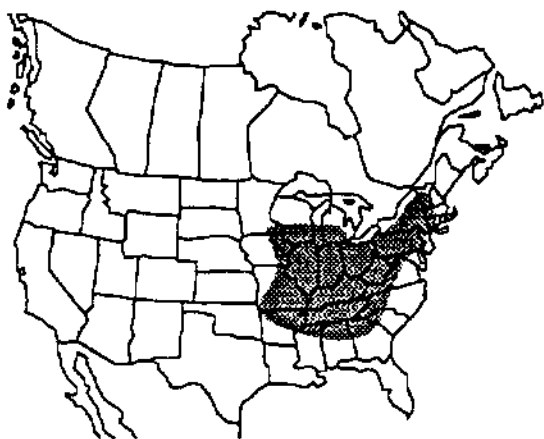
DESCRIPTION: Golden seal, also known as orange-root, is an herbaceous perennial in the Buttercup family (Ranunculaceae) that grows 30 to 37.5 cm tall (about 12 to 15 in.). The plant rises from an orangy-yellow, knotted rhizome that has been, and still is, harvested for medicinal purposes. Stem scars on the upper side of the rhizome resemble wax seals. Golden seal's shiny leaves are palmately (lobed like a hand) divided into five lobes with doubly serrate edges. One large, long-stalked basal leaf appears in the spring. Plants that have reached the flowering stage (which does not occur until the third or fourth year) have two cauline (stem) leaves, borne near the top of the hairy flowering stem. Golden seal's leaves measure from 3 to 10 cm (1.2 to 3.9 in.) wide at the time of flowering, but may continue to grow up to 25 cm (about 10 in.) wide. The single flower is rather inconspicuous and greenish-white in color. Like flowers of most species in the Buttercup family, it has several pistils and 50 to 75 stamens. This ephemeral (reproductively mature only for one day), approximately 1.3 cm (0.5 in.) wide, bloom has no petals, and the three green to purplish sepals fall off as the flower opens. Filaments of the stamens are 5-8 mm (0.2 - 0.3 in.) long, and the anthers are yellowish. In New England golden seal blooms from early to mid May. Its dark red, aggregate (clumped) fruit resembles a raspberry. Each berry contains 1-2 blackish seeds.



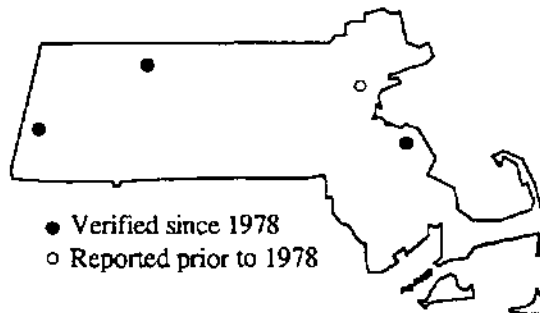
Gleason, H.A. The New Britton and Brown Illustrated Flora of the Northeastern U.S. and Adjacent Canada. New York Botanical Garden, 1952.

RANGE: The range of golden seal extends westerly from Vermont to Minnesota and south to North Carolina, Tennessee, and Arkansas.

SIMILAR SPECIES IN MASSACHUSETTS: The leaves of golden seal resemble those of certain members of the



Documented Range of
Golden Seal



Massachusetts Distribution by Town

genus *Hydrophyllum*, so much so that Linnaeus at first called the species *Hydrophyllum verum canadense*. However, of the two species of waterleaf (*Hydrophyllum* spp.) in this area, only broad waterleaf (*Hydrophyllum canadense*) has palmately-lobed leaves, and unlike golden seal, it has bell-shaped blossoms with whitish to pinkish-purple petals.

HABITAT IN MASSACHUSETTS: Golden seal grows in woodlands, especially in rich, mesic forests. Mesic forests are characterized by moderately moist, not very acidic soils that are high in nutrients from the rich organic matter deposited on the forest floor by the trees. In Massachusetts, there are three documented current stations: a mesic oak/conifer forest; a regenerating sugar maple woods, with many herbs typical of mesic forests; and a rich, mesic, deciduous forest at the base of a dolomitic limestone ledge. Golden seal grows under a canopy including black birch, hickories, maples, American elm, white pine and oak. The understory includes alternate-leaved dogwood (*Cornus alternifolia*) and plants of the herbaceous layer such as round-lobed hepatica (*Hepatica americana*), Virginia grape-fern (*Botrychium virginianum*), downy yellow violet (*Viola pubescens*), nodding trillium (*Trillium cernuum*), and dog violet (*Viola conspersa*), trout lily (*Erythronium americanum*), wild ginger (*Asarum canadense*) and bloodroot (*Sanguinaria canadensis*), Christmas fern (*Polystichum acrostichoides*), bellwort (*Uvularia perfoliata*), and bladder-fern (*Cystopteris bulbifera*). Two of these stations face east, and the third faces north and east.

POPULATION STATUS IN MASSACHUSETTS: Golden seal is listed as "Endangered" in Massachusetts because there are only three current stations (located or reverified since 1978) and one historical station (unverified since 1978). Of the three current stations, however, only two are believed to be natural. It is thought that the species was planted at one site. At another of the current stations no plants were found the last time a survey was made. All had been dug up, either by humans or wildlife. Golden seal is considered rare in numerous other states, including Vermont, Connecticut, New York, Delaware, Maryland, North Carolina, Georgia, Alabama, Mississippi, Tennessee, Indiana, and Minnesota. The plant's rarity is mainly the result of collecting by humans; development of habitat further fragments its distribution and reduces populations. As with all species listed in Massachusetts, individuals of the species are protected from take (picking, collecting, killing...) and sale under the Massachusetts Endangered Species Act.

MANAGEMENT RECOMMENDATIONS: As with most rare plants, exact needs for management of Golden seal are not known. The following advice comes from observations of the populations in Massachusetts and other states where the species is rare. Golden seal has declined throughout its entire range primarily due to collecting, which has actually caused its extirpation from many areas. Like ginseng, the plant has a long history of use in folk medicine. It contains several alkaloids, including hydrastine and berberine, and has been used as a folk remedy for ailments ranging from mouth sores and nasal congestion, to stomach ulcers and sore throats. In addition, it was used by native Americans to make dyes, and is currently used in commercial pharmacology. In Massachusetts the plant's preferred habitat, rich, mesic forest, is uncommon, and these habitats provide the humus-rich soil and leaf litter cover that golden seal thrives on. Development, logging, and even alteration of the soil by compaction may threaten this habitat (Greene, 1991). This plant is so sensitive to development that even one turn of the spade or one tree being cut down will destroy it. According to Coffin and Pfannmuller (1988), golden seal "appears to be intolerant of grazing or disturbances that open the forest canopy." Therefore, sound management practices would be to exclude grazing animals from the vicinity of the plants and to avoid logging or soil compaction by heavy equipment in the immediate vicinity of golden seal.



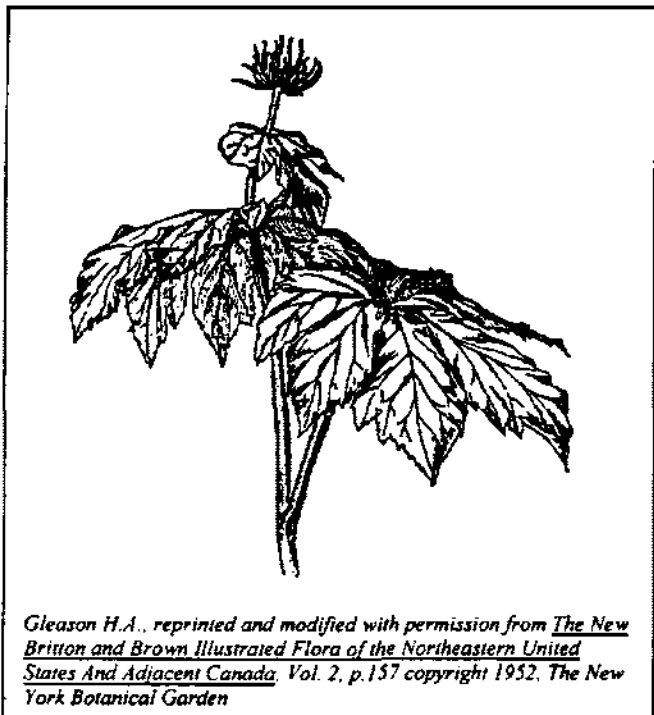
WILD NOTES



Sustainable
Forest Ecosystems

Goldenseal—Plant in Peril?

Goldenseal (*Hydrastis canadensis* L.) is a perennial herb in the Buttercup family (Ranunculaceae). Because of increased popularity in herbal medicines and, in some cases, the reduction and modification of its native habitat, goldenseal is now considered to be rare in many states. In 1997, the World Wildlife Fund included goldenseal as one of the "10 most wanted" species in the world (10 of the most threatened species in demand for international trade). This concern has led to the listing of goldenseal onto Appendix II of the Convention of International Trade in Endangered Species (CITES). CITES plays a significant role in controlling sensitive wildlife and vegetation trade.



Gleason H.A., reprinted and modified with permission from *The New Britton and Brown Illustrated Flora of the Northeastern United States and Adjacent Canada*, Vol. 2, p.157 copyright 1952, The New York Botanical Garden

DESCRIPTION:



Goldenseal is a herbaceous perennial possessing a hairy stem 8 to 15 inches tall that rises from a knotty yellow rhizome (an underground plant stem).

The leaves have doubly serrated margins and are palmately lobed (like a hand, cut into five lobes). In the spring, one large basal leaf appears. When the plant reaches flowering stage (usually not until the 3rd - 4th year), two stem leaves appear near the top of the stem. At flowering time, the leaves measure up to 4 inches wide, but they continue to grow up to 10 inches wide.



A small solitary flower appears in April-May. The flower lacks petals, but has three small greenish-white sepals (petal-like bracts), which fall off as soon as the flower expands. The flower has many green pistils and white stamens.



The fruit ripens in July and has the appearance of a raspberry (small berries clumped together forming one fruit). Each fleshy red berry is tipped with a style and contains 1-2 shiny black seeds. The fruit is inedible.

STATUS:

Goldenseal is not on the federal list of threatened and endangered species. Because it is genuinely rare in many states (largely due to over-collection) it appears on many state rare plant lists. However, in other states it is more common. Goldenseal may be protected from collecting or picking in your state by the State Endangered Species Act. Contact your State Natural Heritage Program for information.

HABITAT:

Goldenseal grows well under shady conditions in moderately moist soil which is high in organic matter. Cool and moist conditions found on north and east slopes are preferred.



Documented Range of
Goldenseal

(Does not include Canadian distribution)

Map Credit: Massachusetts Division of Fisheries and Wildlife,
Natural Heritage & Endangered Species Program.

USES:

Goldenseal root was used by Native Americans as a medication for such illnesses as whooping cough, diarrhea, fever, sour stomach, and other digestive disorders. It was used externally as a wash to treat skin irritations and sore eyes. The yellow root was also used as a clothing dye.

Goldenseal contains the alkaloids berberine and hydrastine, which have natural antibiotic, anti-inflammatory and immune stimulating properties. Today goldenseal is used to provide relief from inflammation of the mucous membranes of the respiratory, digestive, and genito-urinary tracts. Some of these ailments can include colds, the flu, and disorders of the stomach, bladder, prostate, and uterus. A wash prepared from goldenseal root can be used to soothe inflamed eyes and to treat ringworm. It is also used as a natural antiseptic mouthwash and gargle.

CONSERVATION:

Decline — The primary reason for the decline of goldenseal within its native range has been the over-collecting of wild plants (wildcrafted). Another cause for the decline has been the loss and modification of its habitat (e.g., from development). **DO NOT OVERHARVEST**

Cultivation — An alternative to using wildcrafted roots is to use cultivated plants. In order to help preserve goldenseal in its native habitat, some herbal product manufacturers have initiated a cooperative effort to encourage the use of cultivated plants and find improvements in goldenseal cultivation.

Forest Habitat Management — While over-collection remains the primary reason for the decline of the plant, there is still much that is not known about what adversely or beneficially affects the plant. Goldenseal appears to be intolerant of activities that result in soil compaction (i.e. from heavy equipment usage in the immediate vicinity of the plant), as well as disturbances that completely open up the forest canopy cover over the plant (which can threaten goldenseal as it is a shade loving plant), and/or site conversion to activities other than forest uses. This is not to say that forest management practices cannot be implemented. They may even be helpful to goldenseal (as the plant has been found in managed areas). If forest management practices are planned, safety measures for conservation of the plant (based on current information) can include leaving at least a 50 foot buffer around the plant to provide partial shade from the forest canopy, harvesting the trees in winter when possible, and not picking the plant. Please contact your State Natural Heritage/Areas Program and State Forestry Division for more information on the plant and forest management recommendations.

COMMON NAMES

Yellow root	Jaundice root	Indian plant
Yellow eye	Orange root	Turmeric root
Eye root	Ground raspberry	Yellow puccoon

STATE PLANT STATUS LISTING: 8/98

Endangered—CT, GA, MA, MN, NC, VT

Threatened—MD, MI, NY

Not Listed, but Ranked—AL, MS, NJ, PA, TN, WI

Not Listed—AR, IA, IL, IN, KY, MO, OH, SC, VA, WV, DE

References available upon request.

DISCLAIMER: The USDA Forest Service does not endorse the use of goldenseal or any other herbal remedy as a cure for any specific ailments by consumption or otherwise.

For further information consult your State Natural Heritage Program or the contacts listed below.

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